

What is claimed is:

1. A sealed housing comprising:
opposing, substantially planar first and second housing members; and
5 a peripherally extending flex seal assembly interposed between the first and
second housing members and comprising a flexible, thin-film
heating member and at least one ring of sealing material disposed
adjacent the heating member, wherein dissipation of heat from
current applied to the heating member causes the at least one ring of
10 sealing material to fuse to at least the first housing member to form
a corresponding number of hardened seal joints.
2. The housing of claim 1, wherein the heating member comprises an
elongated conductor embedded within a dielectric ribbon.
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3. The housing of claim 2, wherein the dielectric ribbon comprises at
least one layer of thin-film polyimide.
4. The housing of claim 1, further comprising at least one fastener
20 which affixes the first housing member to the second housing member to compress
the flex seal assembly therebetween.
5. The housing of claim 1, wherein the number of hardened seal joints
comprises a plurality of seal joints arranged into nested, discrete rings each in a
25 noncontacting relationship with each remaining ring.
6. The housing of claim 1, wherein the number of hardened, seal joints
are arranged as a continuously extending spiral.
7. The housing of claim 1, wherein the number of hardened seal joints
30 are configured to form a nominally hermetic seal between an interior of the
housing and an exterior environment.

8. The housing of claim 7, further comprising a low density inert gas atmosphere contained within the sealed housing.

5 9. The housing of claim 1, wherein each of the at least one ring of sealing material is formed of solder.

10 10. The housing of claim 1, wherein each of the at least one ring of sealing material is formed of a low permeable, thermoset adhesive.

11. The housing of claim 1, wherein the at least one ring of sealing material comprises a first set of rings disposed on a first side of the heating member to fuse with the first housing member and a second set of rings disposed on an opposing, second side of the heating member to fuse with the second housing member.

15 12. The housing of claim 1, characterized as a housing of a data storage device in which a data storage medium is supported.

13. A sealed housing, comprising:
opposing, substantially planar first and second housing members; and
means for sealing the first and second housing members.

5 14. The sealed housing of claim 13, wherein the means for sealing
further establishes an elongated diffusion path between an interior of the housing
and an exterior environment.

10 15. The sealed housing of claim 13, further comprising at least one
fastener which affixes the first housing member to the second housing member.

16. A flex seal assembly for establishing a seal between opposing, substantially planar first and second housing members, comprising:
a heating member comprising an elongated conductive trace embedded within a flexible, thin-film dielectric ribbon; and
5 at least one ring of sealing material disposed adjacent the heating member, wherein dissipation of heat from current applied to the heating member causes the at least one ring of sealing material to fuse to at least the first housing member to form a corresponding number of hardened seal joints.

10 17. The flex seal assembly of claim 16, wherein the at least one ring of sealing material is arranged so that the resulting number of hardened, concentric seal joints nominally form a plurality of nested, discrete rings each in a noncontacting relationship with each remaining ring.

15 18. The flex seal assembly of claim 16, wherein the number of hardened seal joints are configured to form a nominally hermetic seal between an interior of the housing and an exterior environment.

20 19. The flex seal assembly of claim 16, wherein the hardened seal joints are configured to form an elongated diffusion path along gaps between adjacent seal joints from an interior of the housing to an exterior environment.

25 20. The flex seal assembly of claim 16, wherein the at least one ring of sealing material comprises a first set of rings disposed on a first side of the heating member to fuse with the first housing member and a second set of rings disposed on an opposing, second side of the heating member to fuse with the second housing member.

21. A method for sealing a housing, comprising:
providing opposing, substantially planar first and second housing members;
placing a flex seal assembly between the first and second housing
members, the flex seal assembly comprising a flexible, thin-film
heating member; and
applying current to the heating member to fuse at least one ring of sealing
material to at least the first housing member to form a
corresponding number of hardened seal joints.

22. The method of claim 21, wherein the heating member of the placing
step comprises an elongated conductor embedded within a dielectric ribbon.

23. The method of claim 21, further comprising a step of installing at
least one fastener to affix the first housing member to the second housing member
to compress the flex seal assembly therebetween prior to the applying current step.

24. The method of claim 21, wherein the number of hardened seal joints
of the applying current step are arranged into a plurality of nested, discrete rings
each in a noncontacting relationship with each remaining ring.

25. The method of claim 21, wherein the number of hardened seal joints
of the applying current step are configured to form a nominally hermetic seal
between an interior of the housing and an exterior environment, and wherein the
method further comprises steps of evacuating an existing fluid within the interior
of the housing and filling the interior of the housing with an inert fluid.

26. The method of claim 21, wherein the number of hardened seal joints
of the applying current step form an elongated diffusion path along gaps between
adjacent seal joints from an interior of the housing to an exterior environment.

27. The method of claim 21, wherein each of the at least one rings of
sealing material of the placing step are formed of solder.

28. The method of claim 21, wherein each of the at least one rings of sealing material of the placing step are formed of adhesive.

5 29. The method of claim 21, wherein the concentric rings of sealing material of the applying step comprise a first set of rings disposed on a first side of the heating member and a second set of rings disposed on an opposing, second side of the heating member to fuse with the second housing member so that the applying current step comprises forming the hardened, concentric seal joints between the flex seal assembly and the first housing member and between the flex
10 seal assembly and the second housing member.

30. The method of claim 21, further in combination with a method for subsequently unsealing the housing comprising:
subsequently applying current to the heating member to loosen the sealing
15 material; and
removing the second housing member from the first housing member.

31. The method of claim 21, wherein the housing is characterized as a housing of a data storage device in which a data storage medium is supported.
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32. The method of claim 21, wherein the providing step further comprises providing the at least one ring of sealing material on the first housing member prior to the placing step.

25 33. The method of claim 21, further comprising providing the at least one ring of sealing material on the flex seal assembly prior to the placing step.

34. A sealed housing comprising opposing, substantially planar first and second housing members and a peripherally extending flex seal assembly interposed between the first and second housing members and forming a seal between the first and second housing members by steps for sealing the housing.